

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-185943

(43)Date of publication of application : 28.06.2002

(51)Int.Cl.

H04N 7/173
H04Q 7/38
H04H 1/08
H04M 1/00
H04M 1/725
H04M 11/08

(21)Application number : 2000-377048

(71)Applicant : NEC CORP

(22)Date of filing : 12.12.2000

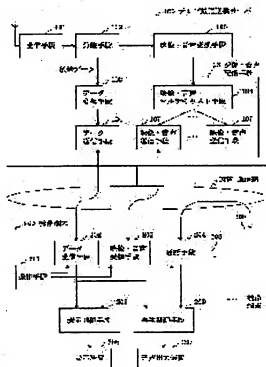
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(54) BROADCASTING VIEWING METHOD, BROADCASTING TRANSMISSION SERVER, PORTABLE TERMINAL AND MULTI-SPOT SPEAKING AND BROADCASTING CONTROL VIEWING EQUIPMENT

(57)Abstract:

PROBLEM TO BE SOLVED: To watch a television program freely at a going out destination by a portable terminal through there is no special television broadcasting receiving equipment at home.

SOLUTION: A television broadcasting transmission server 100 receives television broadcasting by a reception means 101 and separates broadcasting data such as EPG, broadcasting-related information and broadcasting video and voice from each other by a separation means. The broadcasting data is transmitted to the portable terminal 200 being a request source via a transmission means 104 and the broadcasting video and voice is transmitted to the terminal 200 via a video and voice distribution means 105. In order to receive broadcasting data, the terminal 200 requests it to the means 104 in the server 100 through a data reception means 202, receives the broadcasting data converted into a proper form and displays it on the screen of a display device 206 by a display control means 208. A user selects a program which he is interested in by an operation means 201. Then, the video and voice of the program are received from a video and voice receiving means 203 and displayed and reproduced by a display device 206 and a voice output device 207 under the control of a display control means 208 and a reproduction control means 209.



LEGAL STATUS

[Date of request for examination]

12.02.2003

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than withdrawal the examiner's decision of rejection or

application converted registration]

[Date of final disposal for application]

04.12.2003

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision
of rejection]

[Date of requesting appeal against examiner's
decision of rejection]

[Date of extinction of right]

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CLAIMS

[Claim(s)]

[Claim 1] It consists of a television broadcasting transmitting server and two or more personal digital assistants connected to said television broadcasting transmitting server through a communication network. Said television broadcasting transmitting server A separation means to separate a receiving means to receive television broadcasting, and the broadcast image and the sound signal and broadcast data of each channel offered by the television broadcasting received with said receiving means, A data transmission means to transmit the broadcast data separated with said separation means to said personal digital assistant, It has the image and a voice distribution means to distribute to coincidence, to all the personal digital assistants of demand-broadcast image and sound signal of channel demanded from said personal digital assistant among broadcast image and sound signal of each channel separated with said separation means origin. A data receiving means to receive the broadcast data with which said personal digital assistant was transmitted from said television broadcasting transmitting server, The image and a voice receiving means to receive the broadcast image and sound signal which required the broadcast image and the sound signal of the channel specified by the user of said television broadcasting transmitting server, and was transmitted from said television broadcasting transmitting server, A display-control means to display on a display the broadcast image received with the broadcast data received with said data receiving means, and said image and voice receiving means, The television broadcasting viewing-and-listening system characterized by having the playback control means which outputs the broadcast voice received with said image and voice receiving means from an audio output device.

[Claim 2] Said television broadcasting transmitting server is a television broadcasting viewing-and-listening system according to claim 1 characterized by having a data-conversion means to change into the format suitable for the display in said personal digital assistant the broadcast data separated with said separation means.

[Claim 3] Said television broadcasting transmitting server is a television broadcasting viewing-and-listening system according to claim 1 or 2 characterized by having the image and a voice conversion means to change into the format suitable for the display playback in said personal digital assistant the broadcast image and sound signal of each channel separated with said separation means.

[Claim 4] Said image and voice distribution means of said television broadcasting transmitting server Two or more image and voice transmitting means to transmit to the personal digital assistant of demand-broadcast image and sound signal of channel demanded from said personal digital assistant origin, Including the image and a voice multicast means to distribute to said image and voice transmitting means of demand-image and sound signal of channel demanded from said image and voice transmitting means among image and sound signal of each channel separated with said separation means origin The television broadcasting viewing-and-listening system according to claim 1 or 2 by which it is characterized.

[Claim 5] Said image and voice distribution means of said television broadcasting transmitting server Two or more image and voice transmitting means to transmit to the personal digital assistant of demand-image and sound signal of channel demanded from said personal digital

assistant origin, The image and a voice multicast means to distribute to said image and voice transmitting means of demand-image and sound signal of channel demanded from said image and voice transmitting means among image and sound signal of each channel outputted from said image and voice conversion means origin The television broadcasting viewing-and-listening system according to claim 3 characterized by containing.

[Claim 6] Said image and voice transmitting means of said television broadcasting transmitting server are a television broadcasting viewing-and-listening system according to claim 4 or 5 characterized by choosing the broadcast image and sound signal of the channel received from said image and voice multicast means according to the demand of said personal digital assistant.

[Claim 7] Said display-control means of said personal digital assistant is a television broadcasting viewing-and-listening system according to claim 1 characterized by displaying at coincidence the broadcast data received with said data receiving means, and the broadcast image received with said image and voice receiving means on said indicating equipment.

[Claim 8] It is the television broadcasting viewing-and-listening system according to claim 1 or 7 characterized by for said data receiving means of said personal digital assistant receiving serially the broadcast data serially sent from said television broadcasting transmitting server, and said display-control means displaying serially the broadcast data serially received with said data receiving means.

[Claim 9] Said personal digital assistant is a television broadcasting viewing-and-listening system according to claim 1, 7, or 8 characterized by having a cellular-phone function.

[Claim 10] It is the television broadcasting viewing-and-listening system according to claim 9 which said personal digital assistant is equipped with a cellular-phone function with voice and an image, said display-control means compounds a message partner's image and broadcast image, and displays it on said display, and said playback control means compounds a message partner's voice and broadcast voice, and is outputted from said audio output device.

[Claim 11] It is a television broadcasting viewing-and-listening system given in any 1 term of claims 1-10 characterized by transmitting said broadcast data as a packet using the packet exchange network or the Internet network of a public line, and transmitting said broadcast image and voice using a line switching network.

[Claim 12] Said broadcast data, said broadcast image, and voice are a television broadcasting viewing-and-listening system given in any 1 term of claims 1-10 characterized by transmitting as a packet using the packet exchange network or the Internet network of a public line.

[Claim 13] It consists of a multi-point message and television broadcasting control viewing-and-listening equipment connected to a television broadcasting transmitting server, two or more personal digital assistants, and said television broadcasting transmitting server and said two or more personal digital assistants through a communication network. A separation means to separate a receiving means by which said television broadcasting transmitting server receives television broadcasting, and the broadcast image and the sound signal and broadcast data of each channel offered by the television broadcasting received with said receiving means, A data transmission means to transmit the broadcast data separated with said separation means to said multi-point message and television broadcasting control viewing-and-listening equipment, It has the image and a voice distribution means to distribute to said multi-point message and television broadcasting control viewing-and-listening equipment of demand-image and sound signal of channel demanded from said multi-point message and television broadcasting control viewing-and-listening equipment among image and sound signal of each channel separated with said separation means origin. Said personal digital assistant A message means for the voice and the image by the audio input unit and the picture input device to perform other personal digital assistants and television conferences, A data receiving means to receive the broadcast data transmitted from said multi-point message and television broadcasting control viewing-and-listening equipment, The image and a voice receiving means to receive the broadcast image and sound signal which required the broadcast image and the sound signal of the channel specified by the user of said multi-point message and television broadcasting control viewing-and-listening equipment, and was transmitted from said multi-point message and television broadcasting control viewing-and-listening equipment, A display-control means to display on a

display the television conference image received with said message means by the broadcast image list received with the broadcast data received with said data receiving means, and said image and voice receiving means, It has the playback control means which outputs the television conference voice received with the broadcast voice received with said image and voice receiving means, and said message means from an audio output device. Said multi-point message and television broadcasting control viewing-and-listening equipment A two or more demand receiving means to receive various kinds of demands from said personal digital assistant which has participated in the meeting, and to control the whole, Two or more copy speaker image and a voice receiving means to receive a message person's image and voice which said personal digital assistant which has participated in the meeting transmitted, A broadcast data receiving means to receive broadcast data from said television broadcasting transmitting server according to the demand from said personal digital assistant which has participated in the meeting, A broadcast data transmitting means to transmit the received broadcast data to said personal digital assistant of a requiring agency, The broadcast image and a voice receiving means to receive the broadcast image and voice of a channel according to the demand from said personal digital assistant which has participated in the meeting from said television broadcasting transmitting server, While compounding the broadcast image and a voice transmitting means to transmit the broadcast image and voice which received to said personal digital assistant of a requiring agency, and said image and voice of a message person which were received with the message person image and the voice receiving means When there is a demand from said two or more demand receiving means The image and a speech synthesis means to compound the broadcast image and voice which were received with the broadcast data received with said broadcast data receiving means, and said broadcast image and voice receiving means with a message person's image, and voice, The television broadcasting viewing-and-listening system characterized by including the multi-point image and a voice transmitting means to transmit the image and voice which were compounded with said image and speech synthesis means as a television conference image and voice to said personal digital assistant which has participated in the meeting.

[Claim 14] Said television broadcasting transmitting server is a television broadcasting viewing-and-listening system according to claim 13 characterized by having a data-conversion means to change into the format suitable for the display in said personal digital assistant the broadcast data separated with said separation means.

[Claim 15] Said television broadcasting transmitting server is a television broadcasting viewing-and-listening system according to claim 13 or 14 characterized by having the image and a voice conversion means to change into the format suitable for the display playback in said personal digital assistant the broadcast image and sound signal of each channel separated with said separation means.

[Claim 16] Said image and voice distribution means of said television broadcasting transmitting server Two or more image and voice transmitting means to transmit to a multi-point message and television broadcasting control viewing-and-listening equipment of demand-broadcast image and sound signal of channel demanded from said multi-point message and television broadcasting control viewing-and-listening equipment origin, Including the image and a voice multicast means to distribute to said image and voice transmitting means of demand-image and sound signal of channel demanded from said image and voice transmitting means among image and sound signal of each channel separated with said separation means origin The television broadcasting viewing-and-listening system according to claim 14 or 15 by which it is characterized.

[Claim 17] Said image and voice distribution means of said television broadcasting transmitting server Two or more image and voice transmitting means to transmit to a multi-point message and television broadcasting control viewing-and-listening equipment of demand-image and sound signal of channel demanded from said multi-point message and television broadcasting control viewing-and-listening equipment origin, The image and a voice multicast means to distribute to said image and voice transmitting means of demand-image and sound signal of channel demanded from said image and voice transmitting means among image and sound signal of each channel outputted from said image and voice conversion means origin The television broadcasting viewing-and-listening system according to claim 15 characterized by containing.

[Claim 18] Said image and voice transmitting means of said television broadcasting transmitting server are a television broadcasting viewing-and-listening system according to claim 16 or 17 characterized by choosing the broadcast image and sound signal of the channel received from said image and voice multicast means according to the demand of said multi-point message and television broadcasting control viewing-and-listening equipment.

[Claim 19] Said display-control means of said personal digital assistant is a television broadcasting viewing-and-listening system according to claim 13 characterized by displaying at coincidence the broadcast data received with said data receiving means, and the television conference image received with said message means on said indicating equipment.

[Claim 20] It is a television broadcasting viewing-and-listening system given in any 1 term of claims 13-19 which transmit transmission of said broadcast data as a packet using the packet exchange network or the Internet network of a public line, and are characterized by transmitting a television conference image and voice using a line switching network at said broadcast image and a voice list.

[Claim 21] It is a television broadcasting viewing-and-listening system given in any 1 term of claims 13-19 which transmit a television conference image and voice to said broadcast data, said broadcast image, and a voice list as a packet using the packet exchange network or the Internet network of a public line.

[Claim 22] A receiving means to be the television broadcasting transmitting server connected to two or more personal digital assistants through the communication network, and to receive television broadcasting. A separation means to separate the broadcast image and the sound signal, and broadcast data of each channel offered by the television broadcasting received with said receiving means. A data transmission means to transmit the broadcast data separated with said separation means to said personal digital assistant. The television broadcasting transmitting server characterized by having the image and a voice distribution means to distribute to coincidence, to all the personal digital assistants of demand-broadcast image and sound signal of channel demanded from said personal digital assistant among broadcast image and sound signal of each channel separated with said separation means origin.

[Claim 23] The television broadcasting transmitting server according to claim 22 characterized by having a data-conversion means to change into the format suitable for the display in said personal digital assistant the broadcast data separated with said separation means.

[Claim 24] The television broadcasting transmitting server according to claim 22 or 23 characterized by having the image and a voice conversion means to change into the format suitable for the display playback in said personal digital assistant the broadcast image and sound signal of each channel separated with said separation means.

[Claim 25] Two or more image and voice transmitting means to transmit to the personal digital assistant of demand-broadcast image and sound signal of channel with which said image and voice distribution means were demanded from said personal digital assistant origin. Including the image and a voice multicast means to distribute to said image and voice transmitting means of demand-image and sound signal of channel demanded from said image and voice transmitting means among image and sound signal of each channel separated with said separation means origin. The television broadcasting transmitting server according to claim 22 or 23 by which it is characterized.

[Claim 26] Two or more image and voice transmitting means to transmit to the personal digital assistant of demand-image and sound signal of channel with which said image and voice distribution means were demanded from said personal digital assistant origin. The image and a voice multicast means to distribute to said image and voice transmitting means of demand-image and sound signal of channel demanded from said image and voice transmitting means among image and sound signal of each channel outputted from said image and voice conversion means origin. The television broadcasting transmitting server according to claim 24 characterized by containing.

[Claim 27] Said image and voice transmitting means are a television broadcasting transmitting server according to claim 25 or 26 characterized by choosing the broadcast image and sound signal of the channel received from said image and voice multicast means according to the

demand of said personal digital assistant.

[Claim 28] A receiving means to be the television broadcasting transmitting server connected to a multi-point message and television broadcasting control viewing-and-listening equipment through the communication network, and to receive television broadcasting. A separation means to separate the broadcast image and the sound signal, and broadcast data of each channel offered by the television broadcasting received with said receiving means. A data transmission means to transmit the broadcast data separated with said separation means to said multi-point message and television broadcasting control viewing-and-listening equipment. The image and a voice distribution means to distribute to said multi-point message and television broadcasting control viewing-and-listening equipment of demand-image and sound signal of channel demanded from said multi-point message and television broadcasting control viewing-and-listening equipment among image and sound signal of each channel separated with said separation means origin The television broadcasting transmitting server characterized by having.

[Claim 29] The television broadcasting transmitting server according to claim 28 characterized by having a data-conversion means to change the broadcast data separated with said separation means into the format suitable for the display in the personal digital assistant connected to said multi-point message and television broadcasting control viewing-and-listening equipment.

[Claim 30] The television broadcasting transmitting server according to claim 28 or 29 characterized by having the image and a voice conversion means to change the broadcast image and sound signal of each channel separated with said separation means into the format suitable for the display playback in the personal digital assistant connected to said multi-point message and television broadcasting control viewing-and-listening equipment.

[Claim 31] Two or more image and voice transmitting means to transmit to a multi-point message and television broadcasting control viewing-and-listening equipment of demand-broadcast image and sound signal of channel with which said image and voice distribution means were demanded from said multi-point message and television broadcasting control viewing-and-listening equipment origin. Including the image and a voice multicast means to distribute to said image and voice transmitting means of demand-image and sound signal of channel demanded from said image and voice transmitting means among image and sound signal of each channel separated with said separation means origin The television broadcasting transmitting server according to claim 28 or 29 by which it is characterized.

[Claim 32] Two or more image and voice transmitting means to transmit to a multi-point message and television broadcasting control viewing-and-listening equipment of demand-image and sound signal of channel with which said image and voice distribution means were demanded from said multi-point message and television broadcasting control viewing-and-listening equipment origin. The image and a voice multicast means to distribute to said image and voice transmitting means of demand-image and sound signal of channel demanded from said image and voice transmitting means among image and sound signal of each channel outputted from said image and voice conversion means origin The television broadcasting transmitting server according to claim 30 characterized by containing.

[Claim 33] Said image and voice transmitting means are a television broadcasting transmitting server according to claim 31 or 32 characterized by choosing the broadcast image and sound signal of the channel received from said image and voice multicast means according to the demand of said multi-point message and television broadcasting control viewing-and-listening equipment.

[Claim 34] It is a television broadcasting transmitting server given in any 1 term of claims 22-33 characterized by transmitting transmission of said broadcast data as a packet using the packet exchange network or the Internet network of a public line, and transmitting said broadcast image and voice using a line switching network.

[Claim 35] Said broadcast data, said broadcast image, and voice are a television broadcasting transmitting server given in any 1 term of claims 22-33 transmitted as a packet using the packet exchange network or the Internet network of a public line.

[Claim 36] A data receiving means to receive the broadcast data which are the personal digital assistant connected with a television broadcasting transmitting server through a communication

network, and were transmitted from said television broadcasting transmitting server, The image and a voice receiving means to receive the broadcast image and sound signal which required the broadcast image and the sound signal of the channel specified by the user of said television broadcasting transmitting server, and was transmitted from said television broadcasting transmitting server, The personal digital assistant characterized by having a display-control means to display on a display the broadcast image received with the broadcast data received with said data receiving means, and said image and voice receiving means, and the playback control means which outputs the broadcast voice received with said image and voice receiving means from an audio output device.

[Claim 37] Said display-control means is a personal digital assistant according to claim 36 characterized by displaying at coincidence the broadcast data received with said data receiving means, and the broadcast image received with said image and voice receiving means on said display.

[Claim 38] It is the personal digital assistant according to claim 36 or 37 characterized by for said data receiving means receiving serially the broadcast data serially sent from said television broadcasting transmitting server, and said display-control means displaying serially the broadcast data serially received with said data receiving means.

[Claim 39] The personal digital assistant according to claim 36, 37, or 38 characterized by having a cellular-phone function.

[Claim 40] It is the personal digital assistant according to claim 39 which is equipped with a cellular-phone function with voice and an image, said display-control means compounds a message partner's image and broadcast image, and displays it on said display, and said playback control means compounds a message partner's voice and broadcast voice, and is outputted from said audio output device.

[Claim 41] It is a personal digital assistant given in any 1 term of claims 36-40 characterized by receiving said broadcast data as a packet using the packet exchange network or the Internet network of a public line, and said broadcast image and voice receiving using a line switching network.

[Claim 42] Said broadcast data, said broadcast image, and voice are a personal digital assistant given in any 1 term of claims 36-40 characterized by receiving as a packet using the packet exchange network or the Internet network of a public line.

[Claim 43] It is the personal digital assistant which connects with a multi-point message and television broadcasting control viewing-and-listening equipment through a communication network, and is used as a television conference terminal. A message means for the voice and the image by the audio input unit and the picture input device to perform other personal digital assistants and television conferences, A data receiving means to receive the broadcast data transmitted from said multi-point message and television broadcasting control viewing-and-listening equipment, The image and a voice receiving means to receive the broadcast image and sound signal which required the broadcast image and the sound signal of the channel specified by the user of said multi-point message and television broadcasting control viewing-and-listening equipment, and was transmitted from said multi-point message and television broadcasting control viewing-and-listening equipment, A display-control means to display on a display the television conference image received with said message means by the broadcast image list received with the broadcast data received with said data receiving means, and said image and voice receiving means, The personal digital assistant characterized by having the playback control means which outputs the television conference voice received with the broadcast voice received with said image and voice receiving means, and said message means from an audio output device.

[Claim 44] Said display-control means is a personal digital assistant according to claim 43 characterized by displaying at coincidence the broadcast data received with said data receiving means, and the television conference image received with said message means on said display.

[Claim 45] It is the personal digital assistant according to claim 43 or 44 which receives said broadcast data as a packet using the packet exchange network or the Internet network of a public line, and is characterized by a television conference image and voice receiving using a line

switching network at said broadcast image and a voice list.

[Claim 46] It is the personal digital assistant according to claim 43 or 44 which a television conference image and voice receive as a packet in said broadcast data, said broadcast image, and a voice list using the packet exchange network or the Internet network of a public line.

[Claim 47] A two or more demand receiving means to be the multi-point message and television broadcasting control viewing-and-listening equipment connected to a television broadcasting transmitting server and two or more personal digital assistants through the communication network, and to receive various kinds of demands from said personal digital assistant which has participated in the meeting, and to control the whole. Two or more copy speaker image and a voice receiving means to receive a message person's image and voice which said personal digital assistant which has participated in the meeting transmitted. A broadcast data receiving means to receive broadcast data from said television broadcasting transmitting server according to the demand from said personal digital assistant which has participated in the meeting. A broadcast data transmitting means to transmit the received broadcast data to said personal digital assistant of a requiring agency. The broadcast image and a voice receiving means to receive the broadcast image and voice of a channel according to the demand from said personal digital assistant which has participated in the meeting from said television broadcasting transmitting server. While compounding the broadcast image and a voice transmitting means to transmit the broadcast image and voice which received to said personal digital assistant of a requiring agency, and said image and voice of a message person which were received with the message person image and the voice receiving means. When there is a demand from said two or more demand receiving means. The image and a speech synthesis means to compound the broadcast image and voice which were received with the broadcast data received with said broadcast data receiving means, and said broadcast image and voice receiving means with a message person's image, and voice. The multi-point message and television broadcasting control viewing-and-listening equipment characterized by including the multi-point image and a voice transmitting means to transmit the image and voice which were compounded with said image and speech synthesis means as a television conference image and voice to said personal digital assistant which has participated in the meeting.

[Claim 48] They are the multi-point message and television broadcasting control viewing-and-listening equipment according to claim 47 which transmits transmission of said broadcast data as a packet using the packet exchange network or the Internet network of a public line, and is characterized by transmitting a television conference image and voice using a line switching network at said broadcast image and a voice list.

[Claim 49] They are the multi-point message and television broadcasting control viewing-and-listening equipment according to claim 47 which transmits a television conference image and voice to said broadcast data, said broadcast image, and a voice list as a packet using the packet exchange network or the Internet network of a public line.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the television broadcasting viewing-and-listening system for viewing and listening to television broadcasting with a personal digital assistant, the suitable television broadcasting transmitting server for this system, a personal digital assistant, and a multi-point message and television broadcasting control viewing-and-listening equipment.

[0002]

[Description of the Prior Art] Service is started also for the television broadcasting which broadcast was many channelized by digitization of television broadcasting, and carried out multiplex [not only of distribution of only the conventional image and voice but the digital data]. On these specifications, such digital data by which multiplex is carried out is distinguished from broadcast data, a call, a broadcast image, and voice. EPG (Electronic Program Guide) and program related information are contained in broadcast data. Program related information is things, such as data in which the progress in a bidirectional program, a sports program, etc. in which a viewer can also participate etc. is shown.

[0003] Although it is possible to carry pocket mold television so that it can view and listen to the favorite program in the television broadcasting of such many channels easily using a user's idle time, it will be necessary to have television broadcasting reception functional all, such as a tuner, and equipment will become enlargement and an expensive rank. Then, some systems which view and listen to television broadcasting using the personal digital assistant which does not contain a tuner etc. are proposed.

[0004] For example, the interactive television receiver with a transfer facility and personal digital assistant which can transmit, view and listen to the interactive program which received with the television receiver of a house to a personal digital assistant through a public line network are proposed by JP,11-136658,A so that it may view and listen to an interactive program and opportunities, such as ticket sale, may not be missed in going out.

[0005] Moreover, in order to download efficiently the contents of television broadcasting received and accumulated in JP,11-346166,A with the main frame installed in a house to a personal digital assistant and to view and listen to them to it, the pocket viewing-and-listening system which can download, view from what has the few amount of data and listen to the outline of the whole program by short time amount by downloading preferentially among the data which constitute a program, voice, an image, etc. is proposed.

[0006] Moreover, the information transmission system of the digital satellite broadcasting service enables remote operation of the receiving set installed in a house from a personal digital assistant, transmits various kinds of information acquired from digital satellite broadcasting service with the receiving set to a personal digital assistant through a communication line network, and it was made to display on JP,2000-183836,A so that a going-out place could also acquire the convenient information received from digital satellite broadcasting service through a communication line network is proposed. In addition to broadcast data, such as EPG, the image and the sound signal are also mentioned as various kinds of information transmitted to a

personal digital assistant, but he is trying for an image and a sound signal to transmit the image and sound signal received with the receiving set to a personal digital assistant as it is here.

[0007] On the other hand, the personal digital assistant of the TV phone format that it can talk in a cellular phone by improvement in the speed of radio while seeing image clips, such as an advertisement of a movie and a musical promotion video, or looking at a partner's image is also developed.

[0008]

[Problem(s) to be Solved by the Invention] Although the various proposals of the television broadcasting viewing-and-listening system using a personal digital assistant are conventionally made as mentioned above, the equipment by the side of the body with which any system receives television broadcasting is the thing of individual possession installed in the house. Therefore, the individual who does not have such a facility in a house cannot view and listen to a TV program freely at a going-out place.

[0009] Moreover, it was not able to view and listen to a TV program, and was not able to talk by sharing the image during the message in the conventional cellular phone.

[0010] Even if the purpose of this invention is not equipped with a television broadcasting reception facility special to a house, it is to enable it to view and listen to a TV program freely at a going-out place with a personal digital assistant.

[0011] Another purpose of this invention views and listens to a TV program, talking over the telephone with personal digital assistants, or is to enable it to talk by sharing the image (meeting).

[0012]

[Means for Solving the Problem] Even if the television broadcasting viewing-and-listening system concerning this invention is not equipped with a television broadcasting reception facility special to a house, in order to enable it to view and listen to a TV program freely at a going-out place with a personal digital assistant, it consists of a television broadcasting transmitting server and two or more personal digital assistants connected to said television broadcasting transmitting server through a communication network.

[0013] A separation means to separate a receiving means by which said television broadcasting transmitting server receives television broadcasting, and the broadcast image and the sound signal and broadcast data of each channel offered by the television broadcasting received with said receiving means. A data transmission means to transmit the broadcast data separated with said separation means to said personal digital assistant. It has the image and a voice distribution means to distribute to coincidence, to all the personal digital assistants of demand-broadcast image and sound signal of channel demanded from said personal digital assistant among broadcast image and sound signal of each channel separated with said separation means origin.

[0014] A data receiving means to receive the broadcast data with which said personal digital assistant was transmitted from said television broadcasting transmitting server. The image and a voice receiving means to receive the broadcast image and sound signal which required the broadcast image and the sound signal of the channel specified by the user of said television broadcasting transmitting server, and was transmitted from said television broadcasting transmitting server. It has a display-control means to display on a display the broadcast image received with the broadcast data received with said data receiving means, and said image and voice receiving means, and the playback control means which outputs the broadcast voice received with said image and voice receiving means from an audio output device.

[0015] Said television-broadcasting transmitting server may be equipped with the image and a voice conversion means of changing into the format suitable for the display playback in said personal digital assistant the broadcast image and the sound signal of each channel which may be equipped with a data-conversion means change into the format suitable for the display in said personal digital assistant the broadcast data separated with said separation means, and was separated with said separation means. Furthermore, said image and voice distribution means of said television broadcasting transmitting server Two or more image and voice transmitting means to transmit to the personal digital assistant of demand-broadcast image and sound signal of channel demanded from said personal digital assistant origin. The image and sound signal of each

channel separated with said separation means Or the image and a voice multicast means to distribute to said image and voice transmitting means of demand-image and sound signal of channel demanded from said image and voice transmitting means among image and sound signal of each channel outputted from said image and voice distribution means origin may be included. In this case, you may make it said image and voice transmitting means choose the broadcast image and sound signal of the channel received from said image and voice multicast means according to the demand of said personal digital assistant.

[0016] Said display-control means of said personal digital assistant may make the broadcast data received with said data receiving means, and the broadcast image received with said image and voice receiving means the configuration displayed on said display at coincidence. Moreover, said data receiving means may receive serially the broadcast data serially sent from said television broadcasting transmitting server, and said display-control means may make the broadcast data serially received with said data receiving means the configuration displayed serially. Furthermore, said personal digital assistant may be equipped with the cellular-phone function only with voice, and the cellular-phone function with voice and an image. In the case of the latter, said display-control means may compound a message partner's image and broadcast image, and may display them on said display, and said playback control means may be constituted so that a message partner's voice and broadcast voice may be compounded and it may output from said audio output device.

[0017] Said broadcast data are transmitted as a packet using the packet exchange network or the Internet network of a public line, and you may make it transmit said broadcast image and voice using a line switching network, and may make it transmit said broadcast data, said broadcast image, and voice as a packet using the packet exchange network or the Internet network of a public line.

[0018] Moreover, in order for the television broadcasting viewing-and-listening system concerning this invention to be able to view and listen to a TV program or to enable it to talk by sharing the image, talking over the telephone with personal digital assistants (meeting), it consists of a multi-point message and television broadcasting control viewing-and-listening equipment connected to a television broadcasting transmitting server, two or more personal digital assistants, and said television broadcasting transmitting server and said two or more personal digital assistants through a communication network.

[0019] A separation means to separate a receiving means by which said television broadcasting transmitting server receives television broadcasting, and the broadcast image and the sound signal and broadcast data of each channel offered by the television broadcasting received with said receiving means. A data transmission means to transmit the broadcast data separated with said separation means to said multi-point message and television broadcasting control viewing-and-listening equipment. It has the image and a voice distribution means to distribute to said multi-point message and television broadcasting control viewing-and-listening equipment of demand-image and sound signal of channel demanded from said multi-point message and television broadcasting control viewing-and-listening equipment among image and sound signal of each channel separated with said separation means origin.

[0020] A message means for said personal digital assistant to perform other personal digital assistants and television conferences with the voice and the image by the audio input unit and the picture input device. A data receiving means to receive the broadcast data transmitted from said multi-point message and television broadcasting control viewing-and-listening equipment. The image and a voice receiving means to receive the broadcast image and sound signal which required the broadcast image and the sound signal of the channel specified by the user of said multi-point message and television broadcasting control viewing-and-listening equipment, and was transmitted from said multi-point message and television broadcasting control viewing-and-listening equipment. A display-control means to display on a display the television conference image received with said message means by the broadcast image list received with the broadcast data received with said data receiving means, and said image and voice receiving means. It has the playback control means which outputs the television conference voice received with the broadcast voice received with said image and voice receiving means, and said

message means from an audio output device.

[0021] Said multi-point message and television broadcasting control viewing-and-listening equipment A two or more demand receiving means to receive various kinds of demands from said personal digital assistant which has participated in the meeting, and to control the whole, Two or more copy speaker image and a voice receiving means to receive a message person's image and voice which said personal digital assistant which has participated in the meeting transmitted, A broadcast data receiving means to receive broadcast data from said television broadcasting transmitting server according to the demand from said personal digital assistant which has participated in the meeting, A broadcast data transmitting means to transmit the received broadcast data to said personal digital assistant of a requiring agency, The broadcast image and a voice receiving means to receive the broadcast image and voice of a channel according to the demand from said personal digital assistant which has participated in the meeting from said television broadcasting transmitting server, While compounding the broadcast image and a voice transmitting means to transmit the broadcast image and voice which received to said personal digital assistant of a requiring agency, and said image and voice of a message person which were received with the message person image and the voice receiving means When there is a demand from said two or more demand receiving means The image and a speech synthesis means to compound the broadcast image and voice which were received with the broadcast data received with said broadcast data receiving means, and said broadcast image and voice receiving means with a message person's image, and voice, The multi-point image and a voice transmitting means to transmit the image and voice which were compounded with said image and speech synthesis means as a television conference image and voice to said personal digital assistant which has participated in the meeting are included.

[0022] Said television-broadcasting transmitting server may be equipped with a data-conversion means change into the format suitable for the display in said personal digital assistant the broadcast data separated with said separation means, and may be equipped with the image and a voice conversion means of changing into the format suitable for the display playback in said personal digital assistant the broadcast image and the sound signal of each channel separated with said separation means. Moreover, said image and voice distribution means of said television broadcasting transmitting server Two or more image and voice transmitting means to transmit to a multi-point message and television broadcasting control viewing-and-listening equipment of demand-broadcast image and sound signal of channel demanded from said multi-point message and television broadcasting control viewing-and-listening equipment origin, The image and sound signal of each channel separated with said separation means Or the image and a voice multicast means to distribute to said image and voice transmitting means of demand-image and sound signal of channel demanded from said image and voice transmitting means among image and sound signal of each channel outputted from said image and voice conversion means origin may be included. In this case, said image and voice transmitting means choose the broadcast image and sound signal of the channel received from said image and voice multicast means according to the demand of said multi-point message and television broadcasting control viewing-and-listening equipment. Moreover, said display-control means of said personal digital assistant may be a configuration which displays at coincidence the broadcast data received with said data receiving means, and the television conference image received with said message means on said display. Furthermore, transmission of said broadcast data is transmitted as a packet using the packet exchange network or the Internet network of a public line, and you may make it transmit a television conference image and voice to said broadcast image and a voice list using a line switching network, and may make it transmit a television conference image and voice to said broadcast data, said broadcast image, and a voice list as a packet using the packet exchange network or the Internet network of a public line.

[0023]

[Function] Even if it is the user who does not have a television broadcasting reception facility special to a house, according to the television broadcasting viewing-and-listening system of this invention, it can view and listen to a TV program freely by receiving television broadcasting distribution service of a television broadcasting transmitting server in a going-out place with a

personal digital assistant. Moreover, it can view and listen to a TV program, talking over the telephone with personal digital assistants, or if it is in the configuration equipped with a multi-point message and television broadcasting control viewing-and-listening equipment, it can talk by sharing the image (meeting).

[0024]

[Embodiment of the Invention] Next, the example of the gestalt of operation of this invention is explained to a detail with reference to a drawing.

[0025] Drawing 1 is the block diagram showing the television broadcasting viewing-and-listening structure of a system which used the television broadcasting transmitting server by the gestalt of operation of the 1st of this invention, a personal digital assistant, and them. As shown in drawing 1, the television broadcasting viewing-and-listening system of this example consists of a television broadcasting transmitting server 100, two or more personal digital assistants 200, and a communication network NW that connects them mutually. It may consist of a packet exchange network of a public line, an Internet network, a public line switched network, etc., and the transmission system may not be restricted to wireless, either, but a communication network NW may be a wired system.

[0026] The television broadcasting transmitting server 100 intervenes between the television broadcasting station and each personal digital assistant 200 which are not illustrated, and provides two or more personal digital assistants 200 which are clients with the service which distributes the television broadcasting broadcast from one or more television broadcasting stations to a personal digital assistant 200 by onerous or onerous. A personal digital assistant 200 is a personal terminal, and it is lightweight-ized and it can receive television broadcasting service by wireless or the cable via MOJURA of a public telephone by small and accessing the television broadcasting transmitting server 100 through a communication network NW so that conveniently [carrying]. Moreover, the personal digital assistant 200 of the gestalt of this operation is available also as a usual cellular phone. Hereafter, the television broadcasting transmitting server 100 and the example of a configuration of a personal digital assistant 200 are explained.

[0027] In addition, it is applicable also to distribution service of the analog broadcasting which this invention is not limited only to distribution service of BS digital broadcasting, can apply it to distribution service of digital broadcast of arbitration including terrestrial digital broadcast, and broadcasts data, such as an alphabetic character, not only in addition to digital broadcast but an image and voice although distribution service of BS digital broadcasting is taken up for an example with the gestalt of this operation for convenience of explanation. Furthermore, it is also possible to offer distribution service of broadcast of two or more gestalten. This is the same also with the gestalt of operation mentioned later.

[0028] A receiving means 101 by which the television broadcasting transmitting server 100 receives BS digital broadcasting, A separation means 102 to separate the image and the sound signal, and broadcast data of each channel offered by BS digital broadcasting which received, A data-conversion means 103 to change the separated broadcast data into the format suitable for the display in a personal digital assistant 200, A data transmission means 104 to transmit the broadcast data after conversion to a personal digital assistant 200, The image and a voice conversion means 105 to change the image and sound signal of each separated channel into the format suitable for the display playback in a personal digital assistant 200, The image and a voice distribution means 106 to distribute to coincidence are included to all the personal digital assistants 200 of demand-image and sound signal of channel demanded from personal digital assistant 200 among image and sound signal of each channel after conversion origin.

[0029] The receiving means 101 consists of accepting stations for BS digital broadcasting installed for example, in each home. However, since the program of all the channels currently broadcast always needs to be received, the accepting station for BS digital broadcasting for every channels, such as an object for BS-1 and an object for BS-2, is prepared. The interior of the separation means 102, the data-conversion means 103, and an image and a voice conversion means 105 has multiplexing composition so that the concurrency also of separation processing, data-conversion processing, and an image and voice transform processing may be carried out

and they can be carried out according to this.

[0030] Moreover, two or more image and voice transmitting means 107 to transmit to the personal digital assistant 200 of demand-image and sound signal of channel with which image and voice distribution means 106 were demanded from personal digital assistant 200 origin, The image and a voice multicast means 108 to distribute to the image and the voice transmitting means 107 of demand-image and sound signal of channel demanded from image and voice transmitting means 107 among image and sound signal of each channel outputted from image and voice conversion means 105 origin efficiently are included. Only required sufficient number is prepared, and when use and un-using it are managed and distribution of the image and voice of a TV program is required from a personal digital assistant 200 by the image and the voice distribution means 106, one intact image and voice transmitting means are secured, and an image and the voice transmitting means 107 are assigned to the personal digital assistant 200 of a requiring agency, and performs distribution of an image and voice.

[0031] On the other hand, actuation means 201 for two or more personal digital assistants 200 to carry out the same configuration altogether, and to receive various kinds of user actuation, such as a keyboard, A data receiving means 202 to receive the broadcast data transmitted from the television broadcasting transmitting server 100, The image and a voice receiving means 203 to receive the image and sound signal which required the image and the sound signal of the channel specified by the user of the television broadcasting transmitting server 100, and was transmitted from the television broadcasting transmitting server 100 according to this, The message means 204 as which this personal digital assistant 200 is operated as a cellular phone, and the audio input units 205, such as a microphone which inputs a user's voice into the message means 204, The displays 206, such as a liquid crystal display, and the audio output devices 207, such as a loudspeaker, A display-control means 208 to display the broadcast data received with the data receiving means 202, and the image received with the image and the voice receiving means 203 on a display 206, The playback control means 209 which outputs the voice of the message partner received by the voice and the message means 204 which were received with the image and the voice receiving means 203 from an audio output device 207, and the power source which supplies operating power to each part and which is not illustrated are included.

[0032] Next, actuation of the television broadcasting viewing-and-listening system of the gestalt of this operation is explained.

[0033] The data-broadcasting transmitting server 100 has always received BS digital broadcasting in the receiving means 101. In BS digital broadcasting, the program is sponsored by each channel and EPG etc. is offered. Furthermore, the data in which the progress of a game etc. is shown are also superimposed by the program in the bidirectional program in which a viewer can also participate in addition to an image or voice, and a sports program, and it is transmitted to it. Such a program is divided into a broadcast image and voice, and the broadcast data that are other EPG and program related information with the separation means 102. Broadcast data are the broadcast description language BML (Broadcast Markup Language). Although described, since it is a description language in consideration of expressing BML as television, it is not suitable for seeing on the small screen of a personal digital assistant 200 in many cases. Then, it changes into a suitable data format with the data-conversion means 103 (about the example of a suitable data format, it mentions later). The broadcast data changed into this suitable data format are transmitted to a personal digital assistant 200 via the data transmitting means 104.

[0034] On the other hand, the image and voice of each channel separated with the separation means 102 are sent to an image and the voice conversion means 105. An image and voice have the problem with the high resolution of an image that there is much traffic in viewing and listening with a common personal digital assistant, although it encodes by coding method MPEG-2 which are an ISO criterion. So, an image and voice are changed into the suitable format to which are and it listens easy to view with a personal digital assistant with an image and the voice conversion means 105. For example, about an image, when resolution of an image is made small and it changes into coding method MPEG-4 which are an ISO criterion, it is suitable for viewing

and listening with a personal digital assistant. Moreover, about voice, when a bit rate is made low and it changes into voice coding methods, such as AMR, it is convenient. The image and voice of each channel changed into this suitable format are transmitted to two or more image and voice transmitting means 107 at coincidence using an image and the voice multicast means 108. Although the image and voice of two or more channels are changed with an image and the voice conversion means 105, it is transmitted by the multicast method in an image and the voice multicast means 108. Each image and voice transmitting means 107 choose the channel to distribute according to the demand from a terminal unit 200, receives suitable image and voice from an image and the voice multicast means 108, and transmits it to the corresponding terminal unit 200.

[0035] The above is actuation of the data-broadcasting transmitting server 100. Next, actuation of a personal digital assistant 200 is explained.

[0036] In a personal digital assistant 200, if the viewing-and-listening demand of television broadcasting is received from a user through the actuation means 201, the demand of broadcast data will be given to the data transmitting means 104 of the data-broadcasting transmitting server 100 through the data receiving means 202, and the broadcast data containing EPG changed into the suitable format or program related information will be received. This is expressed on the screen of a display 206 as the display-control means 208, and a user is shown. A user looks at this, and if there is an interested program, he will choose a channel with the actuation means 201. As for the selected channel, an image and the voice receiving means 203 give a demand to the image and the voice distribution means 106 of the data-broadcasting transmitting server 100. With an image and the voice distribution means 106, one an image and the voice transmitting means 107 are assigned to the personal digital assistant 200 of a requiring agency, and the image and voice of the channel concerned are sent out from its image and voice transmitting means 107. An image and the voice receiving means 203 receive this image and voice that were sent out, you display an image on a display 206 with the display-control means 208, and voice makes it to be outputting from an audio output device 207 by the playback control means 209, and view and listen to the program of the channel chosen as the user the image of the received channel, and among voice.

[0037] On the other hand, if the input and submission operation of a number to be dialed are performed through the actuation means 201, with the message means 204, the same call origination actuation as the usual cellular phone is performed, and it can telephone to the partner of a dial place. The voice of the user in that case is inputted from an audio input unit 205, and a message partner's voice is outputted by the playback control means 209 from an audio output device 207. In another personal digital assistant 200, the message partner of **** may be good and may be a fixed-line telephone. Even if it is the configuration of providing a user with a message function and a television reception function alternatively, you may be the configuration with which coincidence is provided. In the case of the latter, the playback control means 209 carries out [voice / the voice of the TV program received with the image and the voice receiving means 203, and / of the message partner received with the message means 204] mixing (addition), and is outputted from an audio output device 207.

[0038] Furthermore, a use gestalt is concretely explained using drawing 2. The data-broadcasting transmitting server 100 is divided into the broadcast data containing the program related information which is data, such as a race card (EPG) and an advance situation of a program, about the contents of the received television broadcasting, and the image and voice of the program of each channel. Among these, versatility will become high if broadcast data are expressed in the HTML format which is the data format which can be used by WorldWideWeb (WWW) used widely now. It is still more convenient when it is expressed in the compact HTML (C-HTML) format, in order to see such data especially with the personal digital assistant 200. Therefore, as for the data-conversion means 103 of the data-broadcasting transmitting server 100, it is desirable that it is a means to change the broadcast data described by BML into the broadcast data described by C-HTML. Moreover, data conversion which data and a broadcast image were related and was made legible by using the hyperlink to the program broadcast image relevant to broadcast data can be performed. The broadcast data of a C-HTML format are held

at the storage section (not shown) which can be referred to from the data transmitting means 104, and are suitably updated by the newest contents. In this case, the data transmitting means 104 interprets a HTTP protocol, and is constituted as a server of WWW which transmits the broadcast data containing the race card written by C-HTML according to the demand from the personal digital assistant 200 which is a client, or program related information.

[0039] The data receiving means 202 of the personal digital assistant 200 which is a client requires of the data transmitting means 104 which is the server of WWW, receives broadcast data, and just displays broadcast data through the display-control means 208. For example, using i-mode (trademark) of the cellular phone used widely now, it can let the packet exchange network NW1 of mobile communications pass, the broadcast data which contain a race card and program related information from a personal digital assistant 200 to the data transmitting means 104 which is a WWW server can be required, and it can display on the display 206 of a personal digital assistant 200. In this case, broadcast data are transmitted as a packet.

[0040] By carrying out such actuation, a race card can be seen like the example 2021 of a data display screen on a personal digital assistant 200. When a program to watch in more detail is chosen, the program related information which shows the detailed data of the program, the advance situation of a program, etc. like the example 2022 of a data display screen comes to be known.

[0041] When the advance situation of programs, such as a sports program, changes every moment, data transmission of the push format that the data transmitting means 104 transmits data every moment is performed, and an advance situation can be checked if the data with which the data receiving means 202 is transmitted one after another can be received. Data transmission of the false push format that the data receiving means 202 sends out a data Request to Send to the data transmitting means 104 one after another about this is sufficient.

[0042] As opposed to the program of a user choosing from a race card the channel which wants to see an image on this screen, or looking at the advance situation, and wanting to see not only program related information but an image since it is interested in expansion of a program When the actuation means 201 performs selection actuation, the image and the voice receiving means 203 of a personal digital assistant 200 are communicating with one the image and the voice transmitting means 107 of the television broadcasting transmitting server 100. An image is displayed for the image of the program concerned, and an audio stream on a display 206 through reception and the display-control means 208, and voice is outputted from an audio output device 207 through the playback control means 209. Under the present circumstances, you may make it the display-control means 208 show a user broadcast data and a broadcast image at coincidence so that the image received by the screen bottom of a display 206 with the image and the voice receiving means 203 in the broadcast data received with the data receiving means 202 may be displayed on the screen bottom at coincidence, respectively.

[0043] Especially the protocol for transmitting and receiving an image and voice is not specified. However, the readiness which cannot watch a program when you want for download when the synchronia of watching the program under present broadcast on that spot with a gestalt which all downloads the data to a personal digital assistant 200 after once recording on videotape and accumulating the program on the server and completing a program is unrealizable to take time amount, and to see is also unrealizable. Therefore, it is desirable that it is the protocol which is the format that it divides an image into one screen at a time, voice is divided into a certain amount of time amount, and it transmits, and connects, views and listens to it with a personal digital assistant 200. As such a protocol, H.324 which ITU-T set, for example to next-generation cellular phones can be used. H. 324 is a protocol which realizes the TV phone which can talk over the telephone by letting the line switching network of mobile communications pass, and receiving delivery, and a partner's image and voice for one's image and voice while looking at a partner's image immediately on that spot. Therefore, H.324 can be mounted in the image and the voice transmitting means 107 of the television broadcasting transmitting server 100, and the image and voice receiving means 203 of a personal digital assistant 200, and it can view and listen to a broadcast image and voice on that spot by making the communication link between both perform through the line switching network NW2 of mobile communications. Moreover, you

may be not the line switching network NW2 of mobile communications but the gestalt which transmits and receives an image and voice on the Internet, and the same viewing and listening is possible by using H.323 which ITU-T defined in that case. In this case, it is transmitted as a packet like [a broadcast image and voice] broadcast data.

[0044] With the gestalt of the 1st operation, although the personal digital assistant 200 has the telephone function only with voice, it may be equipped with a camera and may have the same TV phone function as a next-generation cellular phone. The example of a configuration of the personal digital assistant 200 which has a TV phone function is shown in drawing 3. In addition to the audio input unit 205, it connects with the picture input devices 210, such as a digital camera, and the message means 204 has the function to perform telephone and TV phone of a partner with the same TV phone function. Moreover, the image of the message partner received with the message means 204 is displayed on a display 206 by the display-control means 208. You may be the configuration of performing alternatively viewing and listening and the TV phone of television broadcasting, and may be the configuration which can be performed to coincidence. When carrying out to the ability to be viewed and listened also to a TV program, telephoning, the display-control means 208 displays at coincidence the broadcast image received with the image and the voice receiving means 203, and the image of the partner by the TV phone on the screen of a display 206. A screen may be divided into two, a broadcast image and a message partner's image may be displayed, respectively, and the broadcast data further received with the data receiving means 202 may also be displayed on coincidence. On the other hand, the playback control means 209 compounds television voice and message voice like the personal digital assistant 200 of drawing 1, and outputs them from an audio output device 207.

[0045] The personal digital assistant 200 which has such a TV phone function can also be used as a meeting terminal of the communication link between many points. In that case, it is convenient, if it can view and listen to a TV program or you can hold a conference by sharing the image of a program with a partner during a meeting. Below, the gestalt of the operation which applied this invention to the teleconference between many points is explained.

[0046] Drawing 4 is a television broadcasting viewing-and-listening structure-of-a-system Fig. concerning the gestalt of operation of the 2nd of this invention. The television broadcasting viewing-and-listening system of this example consists of the television broadcasting transmitting server 100, two or more personal digital assistants 200 with a camera, a multi-point message and television broadcasting control viewing-and-listening equipment 300, and a communication network NW that connects them mutually.

[0047] The television broadcasting transmitting server 100 performs the almost same actuation as the television broadcasting transmitting server 100 of drawing 1 explained as a gestalt of the 1st operation. However, the data transmitting means 104 offers broadcast data not only to offer of the broadcast data to the personal digital assistant 200 which has carried out direct access to the self-server 100 but to a multi-point message and television broadcasting control viewing-and-listening equipment 300. moreover, an image and the voice distribution means 106 not only in the broadcast image to the personal digital assistant 200 which has carried out direct access to the self-server 100, and audio distribution The demand of the image and voice of the TV program from a multi-point message and television broadcasting control viewing-and-listening equipment 300 is received, empty image and voice transmitting means 107 are assigned, and a broadcast image and voice are distributed also to a multi-point message and television broadcasting control viewing-and-listening equipment 300.

[0048] A personal digital assistant 200 is equipped with the picture input devices 210, such as a digital camera, is a terminal which can perform a TV phone with a message partner, and is used also as a meeting terminal. The configuration of a personal digital assistant 200 is the same as what was shown in drawing 3. However, viewing and listening and the TV phone of television broadcasting can perform now to coincidence.

[0049] Although the teleconference control unit between many points (MCU; Multipoint Control Unit) is generally needed when two or more users hold a conference using the personal digital assistant 200 which has a TV phone function In order to enable it to share while holding a conference in the image sent by the television broadcasting transmitting server 100 among two

or more users, with the gestalt of this operation It has the multi-point message and the television broadcasting control viewing-and-listening equipment 300 which gave the function to make two or more personal digital assistants 200 share the image and voice of a TV program in addition to the function of the existing teleconference control device between many points.

[0050] A multi-point message and the television broadcasting control viewing-and-listening equipment 300 of this example A two or more demand receiving means 301 to receive various kinds of demands from the personal digital assistant 200 which has participated in the meeting, and to control the whole, Two or more copy speaker image and a voice receiving means 302 to receive a message person's image and voice which the personal digital assistant 200 which has participated in the meeting transmitted, A broadcast data receiving means 307 to receive broadcast data from the television broadcasting transmitting server 100 according to the demand from the personal digital assistant 200 which has participated in the meeting, A broadcast data transmitting means 308 to transmit the received broadcast data to the personal digital assistant 200 of a requiring agency, The broadcast image and a voice receiving means 305 to receive the broadcast image and voice according to a demand from the personal digital assistant 200 which has participated in the meeting from the television broadcasting transmitting server 100, While compounding a message person's image and voice which were received with the broadcast image and a voice transmitting means 306 to transmit the broadcast image and voice which received to the personal digital assistant 200 of a requiring agency, and two or more copy speaker image and a voice receiving means 302 When there is a demand from two or more demand receiving means 301 The image and a speech synthesis means 304 to compound the broadcast image and voice which were received with broadcast data, and the broadcast image and the voice receiving means 305 which were received with the broadcast data receiving means 307 with a message person's image, and voice, The multi-point image and a voice transmitting means 303 to transmit the image and voice which were compounded with this image and speech synthesis means 304 to the personal digital assistant 200 which has participated in the meeting are included.

[0051] Next, actuation of the gestalt of this operation is explained. In addition, since the actuation at the time of accessing the television broadcasting transmitting server 100 directly from each personal digital assistant 200, and receiving distribution service of television broadcasting is the same as the gestalt of operation mentioned above, below, the actuation at the time of two or more users performing a television conference using a personal digital assistant 200 is explained.

[0052] A multi-point message and television broadcasting control viewing-and-listening equipment 300 Two or more personal digital assistants 200 with a camera which exist in many points with a connection type a reservation connection type and instantly are connected in the shape of a star via the mobile communication network NW. Mixing is carried out [voice / of two or more users] while compounding the image of the user of the plurality [means / 302 / two or more copy speaker image and / voice receiving] in reception, and an image and a speech synthesis means 304 for a user's image and the voice of conversation which are sent from each personal digital assistant 200 as one image. Composition of two or more users' image divides a screen into the number of the personal digital assistants which have participated in the meeting, and the approach of reducing and compounding each user's image to each division field etc. is adopted. The image and voice which were compounded are transmitted to the personal digital assistant 200 which has participated in the meeting through a multi-point image and the voice transmitting means 303.

[0053] In a personal digital assistant 200 side, the message means 204 receives the image and voice which were transmitted from the multi-point image and the voice transmitting means 303, an image is displayed on a display 206 by the display-control means 208, and voice is outputted by the playback control means 209 from an audio output device 207. By doing in this way, while the user of many points looks at a partner's image, it can talk over the telephone (meeting).

[0054] Here, since he wants to see the broadcast data of television broadcasting while a certain user who has participated in the meeting talks over the telephone, if the actuation means 201 of the own personal digital assistant 200 is operated and broadcast data request to receipt is transmitted from the data receiving means 202 to two or more demand receiving means 301 of a

multi-point message and television-broadcasting control viewing-and-listening equipment 300, two or more demand receiving means 301 will transmit this demand to the broadcast data receiving means 307. The broadcast data receiving means 307 transmits this demand to the television broadcasting transmitting server 100, and transmits the broadcast data received as that response through the broadcast data transmitting means 308 to the data receiving means 202 of the personal digital assistant 200 of a requiring agency. The data receiving means 202 displays the received broadcast data on a display 206 with the display-control means 208. At this time, as the image of the TV phone message person received with the image and the voice receiving means 203 is displayed on the screen bottom of an indicating equipment 206 and the display-control means 208 displays broadcast data on the screen bottom, it displays a message person's image and broadcast data on an indicating equipment 206 at coincidence. It can talk over the telephone by this, looking at a partner's image (meeting), and the broadcast data which contain EPG and program related information further can be seen.

[0055] If a demand to that effect transmits from a data receiving means 202 to a two or more demand receiving means 301 by actuation of the actuation means 201 of a personal digital assistant 200 to also show this broadcast data to the partner who has participated in the meeting, a two or more demand receiving means 301 directs composition of broadcast data to an image and a speech-synthesis means 304, while directing changing the output of broadcast data to an image and a speech-synthesis means 304 to the broadcast data receiving means 307. A broadcast data receiving means 307 transmits the broadcast data received from the television-broadcasting transmitting server 100 to an image and a speech-synthesis means 304, and in addition to a user's image and the composition of conversation voice received with two or more copy speaker image and the voice receiving means 302, an image and a speech-synthesis means 304 also perform composition of broadcast data, and it transmits it to a multi-point image and a voice transmitting means 303 according to this. The image of the user at this time and composition of broadcast data are performed by the approach of compounding two or more users' image like the above-mentioned, arranging it to the screen up side, and arranging broadcast data to the screen down side. And a multi-point image and the voice transmitting means 303 transmit the image and voice which were compounded to the personal digital assistant 200 which has participated in the meeting.

[0056] In the personal digital assistant 200 which has participated in the meeting, the message means 204 receives the image and voice transmitted from the multi-point image and the voice transmitting means 303, an image is displayed on a display 206 with the display-control means 208, and voice is outputted from an audio output device 207 by the playback control means 209. By this, while the user of many points looks at a partner's image, it can talk over the telephone (meeting), and the same broadcast data can be further seen by all the members. In addition, by requiring the display of only a user image, or the display of only broadcast data from two or more demand receiving means 301 from the data receiving means 202 of a personal digital assistant 200, composition of the broadcast data based on an image and the speech synthesis means 304 is suspended, only a user image and voice can be transmitted from a multi-point image and the voice transmitting means 303, or only broadcast data can also be transmitted from a multi-point image and the voice transmitting means 303.

[0057] On the other hand, if the user who was looking at broadcast data, such as EPG, performs the television reception demand which looked at the image and voice of a certain program and which operated the actuation means 201 of a personal digital assistant 200 to hurt, and specified the channel from the image and the voice receiving means 203 to two or more demand receiving means 301. Two or more demand receiving means 301 transmits this demand to a broadcast image and the voice receiving means 305, and a broadcast image and the voice receiving means 305 transmit a demand to the television broadcasting transmitting server 100, and it receives the image and voice of the television broadcasting transmitted from the television broadcasting transmitting server 100. And the image and voice which were received are transmitted to the image and the voice receiving means 203 of the personal digital assistant 200 of a requiring agency through a broadcast image and the voice transmitting means 306. An image and the voice receiving means 203 output the broadcast voice which displayed the received broadcast image

on the display 206 with the display-control means 208, and received from an audio output device 207 by the playback control means 209. At this time, as the display-control means 208 displays the broadcast image received by the screen bottom of a display 206 with the image and the voice receiving means 203 in the image of the TV phone message person received with the message means 204 on the screen bottom, it displays a message person's image and broadcast image on a display 206 at coincidence. Moreover, the playback control means 209 carries out [voice / which was received with the image and the voice receiving means 203 / the voice of the message person received with the message means 204, and / broadcast] mixing, and is outputted from an audio output device 207. It can talk over the telephone by this, looking at a partner's image (meeting), and can view and listen to a still more favorite TV program.

[0058] Moreover, since he wants to show the image of the same TV program as the partner who has participated in the meeting by the reasons of taking up the TV program to which it viewed and listened in this way in the subject of a meeting. If actuation of the actuation means 201 of a personal digital assistant 200 sends out a demand to that effect to two or more demand receiving means 301 from an image and the voice receiving means 203. Two or more demand receiving means 301 takes out directions to a broadcast image and the voice receiving means 305, and while making the image and voice which received from the television broadcasting transmitting server 100 transmit to an image and the speech synthesis means 304, composition of a broadcast image and voice is directed for an image and the speech synthesis means 304. A broadcast image and a voice receiving means 305 transmit the broadcast image and the voice which receive from a television-broadcasting transmitting server 100 to an image and a speech-synthesis means 304, and in addition to a user's image and the composition of conversation. voice received with two or more copy speaker image and the voice receiving means 302, an image and a speech-synthesis means 304 also perform composition of a broadcast image and voice, and it transmits it to a multi-point image and a voice transmitting means 303 according to this. Composition of the image of the user at this time and a broadcast image is performed by the approach of compounding two or more users' image like the above-mentioned, arranging it to the screen up side, and arranging a broadcast image to the screen down side. Moreover, mixing is carried out [voice / of a user / conversation voice and broadcast voice], and it compounds. And a multi-point image and the voice transmitting means 303 transmit the image and voice which were compounded to the personal digital assistant 200 which has participated in the meeting.

[0059] In the personal digital assistant 200 which has participated in the meeting, the message means 204 receives the image and voice transmitted from the multi-point image and the voice transmitting means 303, an image is displayed on a display 206 with the display-control means 208, and voice is outputted from an audio output device 207 by the playback control means 209. By this, while the user of many points looks at a partner's image, it can talk over the telephone (meeting), and it can view and listen to the same TV program by all the members freely. In addition, composition of the broadcast image by the image and the speech-synthesis means 304 suspends, and can transmit only a user image and voice from a multi-point image and the voice transmitting means 303, or only a broadcast image and broadcast voice can also transmit from a multi-point image and a voice transmitting means 303 by requiring the display of only a user image, or the display of only television broadcasting from two or more demand receiving means 301 from the image and the voice receiving means 203 of a personal digital assistant 200.

[0060]

[Effect of the Invention] According to this invention, the following effectiveness is acquired as explained above.

[0061] Even if it is the user who does not have a television broadcasting reception facility special to a house, it can view and listen to broadcast data and a TV program freely. The reason is that it can view [a user] and listen to broadcast data and a TV program freely anywhere in a place with the range where television broadcasting distribution service can be received and an electric wave reaches a personal digital assistant, or a public line if it accesses from a going-out place to a television broadcasting transmitting server with a personal digital assistant.

[0062] Also in a personal digital assistant with a small screen, broadcast data become readable.

The reason is for changing broadcast data, such as EPG, into the format suitable for the display in a personal digital assistant in the data-conversion means in a television broadcasting transmitting server.

[0063] It can view and listen to a TV program comparatively comfortably [a personal digital assistant with little / a screen is small and / circuit capacity]. The reason is for changing the broadcast image and sound signal of each channel into the format suitable for the display playback in a personal digital assistant in the image and voice conversion means in a television broadcasting transmitting server.

[0064] Two or more broadcast images and voice to a personal digital assistant can be distributed efficiently. The reason is that it has the image and a voice multicast means of distributing the broadcast image and the voice of each channel which were outputted from the broadcast image of each channel and the voice, or the image and the voice conversion means which had two or more images and voice transmitting means for a television-broadcasting transmitting server to transmit a broadcast image and voice to two or more personal digital assistants, and was separated with the separation means by the multicast method to two or more image and voice transmitting means.

[0065] A user can watch a favorite program freely with a personal digital assistant. The reason is because it has the image and a voice transmitting means by which a television broadcasting transmitting server chooses the broadcast image and voice of a channel which are received from an image and a voice multicast means according to the demand of a personal digital assistant.

[0066] It can view and listen to the broadcast which cooperated broadcast data and a broadcast image comfortably. The reason is because it has a display-control means by which a personal digital assistant displays the received broadcast data and a broadcast image on a display at coincidence.

[0067] The broadcast contents by which data are updated dynamically are also viewed and listened. The reason is for displaying serially the broadcast data with which the broadcast data with which the data receiving means of a personal digital assistant is serially sent from a television broadcasting transmitting server were serially received, and the display-control means was received serially.

[0068] It can also telephone with the personal digital assistant which views and listens to television broadcasting. The reason is because the personal digital assistant is equipped with the cellular-phone function.

[0069] Conversation by the TV phone can be held with a partner, viewing and listening to television broadcasting. The reason is for compounding a message partner's voice and broadcast voice, and outputting from an audio output device while a personal digital assistant is equipped with a cellular-phone function with voice and an image, compounds a message partner's image and broadcast image and displays it on a display.

[0070] It can view and listen to broadcast data by cheap traffic, and a broadcast image and voice can view and listen to a quality program image and voice by using the line switching which is regularity of quality. The reason transmits broadcast data as a packet using the packet exchange network or the Internet network of a public line, and a broadcast image and voice are for transmitting using a line switching network.

[0071] It can view and listen not only to broadcast data but to a broadcast image and voice by cheap traffic. The reason is for a broadcast image and voice also using the packet exchange network or the Internet network of a public line.

[0072] It can view and listen to a TV program, talking over the telephone with personal digital assistants (meeting), or can talk by sharing the image (meeting). The reason is that it has the multi-point message and television broadcasting control viewing-and-listening equipment which gave the function to make two or more personal digital assistants share the image and voice of a TV program in addition to the function of the existing teleconference control device between many points.

[Translation done.]

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.*** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the gestalt of operation of the 1st of this invention.

[Drawing 2] It is drawing explaining the concrete use gestalt of this invention.

[Drawing 3] It is the block diagram showing the example of a configuration of the personal digital assistant which has a TV phone function.

[Drawing 4] It is the block diagram showing the gestalt of operation of the 2nd of this invention.

[Description of Notations]

100 Television Broadcasting Transmitting Server

101 Receiving Means

102 Separation Means

103 Data-Conversion Means

104 Data Transmitting Means

105 Image and Voice Conversion Means

106 Image and Voice Distribution Means

107 Image and Voice Transmitting Means

108 Image and Voice Multicast Means

200 Personal Digital Assistant

201 Actuation Means

202 Data Receiving Means

203 Image and Voice Receiving Means

204 Message Means

205 Audio Input Unit

206 Display

207 Audio Output Device

208 Display-Control Means

209 Playback Control Means

210 Picture Input Device

300 Multi-Point Message and Television Broadcasting Control Viewing-and-Listening Equipment

301 Two or More Demand Receiving Means

302 Two or More Copy Speaker Image and Voice Receiving Means

303 Multi-Point Image and Voice Transmitting Means

304 Image and Speech Synthesis Means

305 Broadcast Image and Voice Receiving Means

306 Broadcast Image and Voice Transmitting Means

307 Broadcast Data Receiving Means

308 Broadcast Data Transmitting Means

2021 Example of Data Display Screen (Race Card)

2022 Example of Data Display Screen (Program Related Information)

[Translation done.]